Singapore

Type of Market: Moderate/Growing

Singapore represents a significant market opportunity for U.S. Health IT companies. Singapore signed a contract with a consortium (including two U.S. companies) in 2010 to develop a National Electronic Health Record system, one of the first Asian countries to formally integrate Health IT into their healthcare system. In addition, Singapore has some built-in advantages for relatively high usage of Health IT, with a compact geography resulting in a highly urbanized society, high per-capita income, and widespread use of mobile phones and Internet. Opportunities exist for U.S. companies in this sector, particularly for care coordination for private insurers and physicians, and possible deployment of new mobile applications. However, firms involved in developing and integrating systems will find few leads in Singapore.

Overall Rank

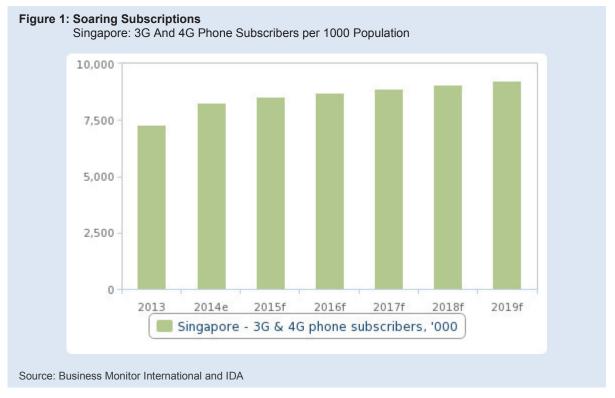
Singapore scored relatively highly across the metrics used for this Report, but received a good overall rating due to its few weaknesses, rather than pronounced strengths in any given category. This correlates well with other comparative measures, showing Singapore with a high GDP per capita (nearly \$37,000 USD in 2013) and a rating as one of the best places to do business in many studies, including the top ranking in the World Bank's "Ease of Doing Business" index. Using this Report's methodology, the reasonably high level of mobile phone subscriptions, strong score on physician density, and its highly urban population, are noteworthy market characteristics.

Challenges in the Market

U.S. health insurance companies have few opportunities to set up operations in Singapore, as the subsidized, multi-layer government operated system has existed for many years to serve Singapore citizens. Singapore has a universal healthcare system with several distinctive insurance programs: one uses large government subsidies to support patients with acute care needs, and is augmented by a compulsory individual medical health savings account (where employers and citizens each contribute). Three other components of the system are: 1) a low cost catastrophic medical insurance scheme that spreads the risk pool across the entire population; 2) optional private insurance plans (usually purchased by middleand upper-income residents) which permit access to private facilities; and 3) a medical endowment fund that supports low-income Singaporeans.

In addition, Singapore will soon be implementing universal healthcare for the population called "MediShield Life," a universal insurance coverage option. It will be rolled out sometime in 2015, most likely towards the end of the year. Under MediShield Life, even people with pre-existing conditions will be covered by insurance.

In 2009, Singapore initiated the National Electronic Health Record (NEHR) project, to provide each Singapore citizen with his or her own EHR. Singapore awarded a contract in 2010 to a consortium of two U.S. companies and one New Zealand-based company to create and develop the NEHR. In April 2011, the first phase of the US \$144 million NEHR system went live, including a National Health Identification Service (NHIS); summary care records for all individuals; access to discharge records and patient summaries; and data center equipment. 52 The project was expected to be completed in June 2012, but is still being rolled out in phases. According to a May 2013 response to a parliamentary question, Singapore's Minister of Health Gan Kim Yong stated that US \$136 million had been spent on NEHR Phase One at that time, and the annual maintenance costs of the system amounted to US \$15.8 million. Although not a challenge as such, it is worth noting that if a country like Singapore (with a population of only 5 million) experiences difficulties in introducing a NEHR, such delays are likely to be pervasive in countries with larger populations. 53



U.S. healthcare stakeholders have expressed interest in greater transparency regarding Ministry of Health (MOH) policies. These concerns are not currently about Health IT, instead relating to greater clarity regarding MOH procedures for adding drugs to the Standard Drugs List, including timelines for evaluation and specific criteria for inclusion, and developing a feedback mechanism; transparency and procedural fairness regarding review periods for new medical devices; and related reimbursement processes.

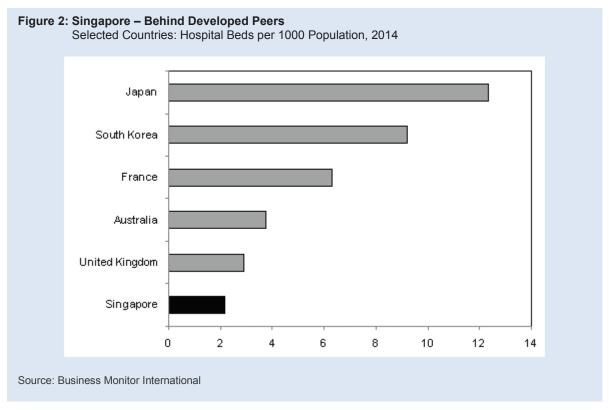
However, given that the oversight of Health IT is shared between MOH and the Infocomm Development Authority (IDA), any lack of clarity and transparency related to policies and procedures (both within and between agencies) could pose challenges for Health IT companies interested in doing business in Singapore.

Opportunities for U.S. Companies

Singapore represents a strong market for introduction of more advanced mobile health and telehealth services for several reasons. Unlike many markets

where consumers primarily purchase prepaid mobile phone subscriptions, Singapore has a comparatively high uptake of postpaid subscriptions, which allows users to have larger data plans and ready access to more sophisticated mobile health and telehealth applications. In February 2015 (the latest monthly data available), IDA reported that, of the 8.1 million mobile phone subscriptions in service that month, 4.71 million (58.2 percent) were postpaid subscriptions. 54

Another reason Singapore can contemplate adoption of advanced mobile health and telehealth technologies is the overwhelming presence of 3G and 4G service. Using IDA February 2015 data, 4.42 million (54.6 percent) of all mobile phone subscriptions were 3G, and 3.38 million (41.8 percent) were 4G. Therefore, approximately 96.4 percent of the population using mobile phones has access to these more sophisticated networks. This high ratio (and increasing number of 3G and 4G subscriptions) is further reflected in forecasts from BMI, growing from 8.3 million subscriptions in 2014 to 9.2 million by 2019 (see Figure 1).



Singapore also has a disease incidence and hospital bed profile where mobile health and telehealth should help address patient treatment concerns. Chronic health conditions such as cancer, heart disease and diabetes rank among the top 10 health conditions leading to hospitalization in Singapore, and the rate of hospital readmissions (mostly for these diseases) increased by nearly 16 percent between 2011 and 2013. This situation, combined with Singapore's fairly low hospital bed availability (only 2.1 hospital beds per 1,000 people, compared to Japan's 12.3/1,000 and Korea's 9.2/1,000; see Figure 2), will likely lead to increased reliance on home-based healthcare. Low hospital bed availability has occasionally led to shortages in recent years, and the Ministry of Health's plans to add 1,900 acute care beds by 2020 will be insufficient to meet estimated demand. The combination of chronic health conditions and hospital bed capacity limitations should lead to a rebalancing of healthcare provision in Singapore, resulting in strong business opportunities for mobile health and telehealth companies able to provide devices to patients to more effectively manage their conditions at home.

Some home-based outpatient mobile health and telehealth initiatives are already in place. For instance,

five of the six Singapore public hospitals currently use a transitional healthcare model whereby medical staff visits patient's homes to ensure adherence to medication. This presents a market opportunity for telehealth initiatives to improve the delivery of healthcare and alleviate the strain on human resources in hospitals.

Public healthcare providers have also begun the transition towards home-based care such as Tan Tock Seng Hospital's Virtual Hospital Initiative. Under this scheme, a manager is assigned to monitor patients who have a history of hospital re-admissions and act as a link to primary care physicians. As of December 2014, the model served 284 patients over a two-year period. According to the hospital's analysis, comparisons of inpatient length of stay and emergency department attendance over six months showed a reduction of 26 percent and 34 percent, respectively. ⁵⁵

In late 2014, Singapore announced the creation of a Smart Nation Programme Office ("Office"), focusing on development of infrastructure and innovative ways of connecting people and "things." This initiative includes health as one of the focus areas. As the Office's priorities and projects continue to evolve and develop, those related to health and Health IT which

incorporate innovative technologies may find a receptive audience.

Health data analytics is another area that the Singapore Government is looking at as part of its population profiling and proactive health management initiatives. With the aging population in Singapore, the government will focus its efforts on leveraging IT to improve care coordination among healthcare providers, presenting a solid market opportunity for companies with expertise in this area. Singapore has also hosted several Health IT industry conferences, further highlighting local interest in the sector.









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